

WHAT IS CLAIMED IS:

1. A magnetic head comprising a support opposed to a recording medium, and a magnetic element supported by the support and having a magnetic functional portion for performing at least one of magnetic detection and magnetic recording on the recording medium;

wherein the magnetic element comprises a laminate of a plurality of films, and the magnetic functional portion positioned in an intermediate portion of the magnetic element in the track width direction, and the magnetic element has a shape in which a portion outside the magnetic functional portion more retreats from the recording medium than the magnetic functional portion, and is supported by the support so that the magnetic functional portion is brought nearer the recording medium than the outside portion.

2. A magnetic head according to Claim 1, wherein the magnetic element has a shape in which the portion outside the magnetic functional portion retreats from the magnetic functional portion through a step.

3. A magnetic head according to Claim 1, wherein in the magnetic element, the portion outside the magnetic functional portion has an inclined linear or curved front edge which gradually separates from the magnetic functional portion.

4. A magnetic head according to Claim 1, wherein the magnetic element comprises an upper shield layer and a lower shield layer each made of a magnetic material and having a predetermined width dimension, and a magnetic sensor portion functioning as the magnetic functional portion positioned between both shield layers, and the portions of both shield layers outside the magnetic functional portion retreat from the magnetic functional portion.

5. A magnetic head according to Claim 1, wherein the magnetic element comprises a lower core layer made of a magnetic material and having a predetermined width dimension, and an upper core layer having a width dimension smaller than the lower core layer and opposed to the lower core layer with a gap provided therebetween, the portion between the lower core layer and the upper core layer serves as the magnetic functional portion, and the portion of the lower core layer outside the magnetic functional portion retreats from the magnetic functional portion.

6. A magnetic head according to Claim 1, wherein the magnetic element is provided on the trailing-side end surface of a slider serving as the support opposed to the recording medium, and a protecting layer made of a magnetic material is provided on the trailing-side end surface to cover the magnetic element.

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7. A magnetic head according to Claim 6, wherein an ABS is formed on the recording medium-facing surface of the slider to extend from the slider to the protecting layer, the magnetic functional portion of the magnetic element is exposed at the ABS or positioned near the ABS, at least a part of the portion of the magnetic element outside the magnetic functional portion extends beyond the ABS in the width direction so that the front edge of the outside portion is buried in the protecting layer without appearing in the surface of the protecting layer.

8. A magnetic head comprising a magnetic element provided at the trailing-side end of a slider and having a magnetic functional portion performing at least one of magnetic detection and magnetic recording on a recording medium;

wherein an ABS is formed on a recording medium-facing surface of the slide so as to protrude to the recording medium side and to be located at a position deviating from the center of the slider in the width direction to one side end thereof, and the magnetic functional portion of the magnetic element is provided on the ABS so as to be located at a position deviating from the center of the maximum width dimension of the ABS to the one side end of the slider.

9. A magnetic head according to Claim 8, wherein a

conconcave notch is formed in the ABS to extend from the one side end of the ABS to the center thereof, and an end of the magnetic functional portion in the track width direction is positioned nearer the center of the ABS than the boundary between the trailing-side edge of the ABS and the notch.

10. A magnetic head according to Claim 8, wherein the magnetic element comprises a laminate of a plurality of films, and the magnetic functional portion positioned in an intermediate portion of the magnetic element in the track width direction, and the magnetic element has a shape with a width dimension in which a portion protrudes from the one side end of the ABS, and the portion extending from the ABS more separates from the recording medium than the magnetic functional portion, and appears in at least one of a step at an edge of the ABS, and the surface retreating from the ABS through the step.

11. A magnetic head according to Claim 8, wherein the magnetic element comprises a laminate of a plurality of films, and the magnetic functional portion positioned in an intermediate portion of the magnetic element in the track width direction, and the magnetic element has a shape with a width dimension in which a portion protrudes from the one side end of the ABS, and the portion extending from the ABS more separates from the recording medium than the magnetic functional portion, and is buried so as not to appear in at

least one of a step at an edge of the ABS, and the surface retreating from the ABS through the step.

12. A magnetic head according to Claim 10, wherein the magnetic head is provided at the trailing-side end of the slider, a protecting layer of a nonmagnetic material is provided on the trailing-side end to cover the magnetic element, the ABS and the step at the edge of the ABS are continuously formed to extend from the slider to the protecting layer, and the protruding portion of the magnetic element is formed to be coplanar with the surface of the protecting layer.

13. A magnetic head according to Claim 11, wherein the magnetic head is provided at the trailing-side end of the slider, a protecting layer of a nonmagnetic material is provided on the trailing-side end to cover the magnetic element, the ABS and the step at the edge of the ABS are continuously formed to extend from the slider to the protecting layer, and the protruding portion of the magnetic element is buried in the protecting layer.

14. 13. A magnetic head according to Claim 10, wherein the magnetic element comprises upper and lower shield layers each made of a magnetic material and having a predetermined width dimension, and a magnetic sensor portion serving as the magnetic functional portion positioned between both

shield layers, both shield layers constituting the protruding portion.

15/14. A magnetic head according to Claim 10, wherein the magnetic element comprises a lower core layer made of a magnetic material and having a predetermined width dimension, an upper core layer having a width dimension smaller than the lower core layer and opposed to the lower core layer with a gap layer provided therebetween, and a portion between the lower and upper core layers serves as the magnetic functional portion, the lower core layer constituting the protruding portion.

16/15. A magnetic head device comprising a magnetic head comprising a support opposed to a recording medium, and a magnetic element supported by the support and having a magnetic functional portion for performing at least one of magnetic detection and magnetic recording on the recording medium;

wherein the magnetic element comprises a laminate of a plurality of films, and the magnetic functional portion positioned at an intermediate portion of the magnetic element in the track width direction, and the magnetic element has a shape in which a portion outside the magnetic functional portion more retreats from the recording medium than the magnetic functional portion, and is supported by the support so that the magnetic functional portion is

brought nearer the recording medium than the outside portion;

wherein an ABS is formed on a recording medium-facing surface of a slider to protrude to the recording medium side and extend from the slider to a protecting layer, the magnetic functional portion of the magnetic element is exposed at the ABS or positioned near the ABS, at least a part of the portion of the magnetic element outside the magnetic functional portion extends beyond the ABS in the width direction so that the front edge of the outside portion is buried in the protecting layer without appearing in the surface of the protecting layer; and

wherein a supporting member is provided for elastically supporting the slider of the magnetic head from the side opposite to the recording medium-facing surface.

11/16. A magnetic head device comprising a magnetic head comprising a support opposed to a recording medium, and a magnetic element supported by the support and having a magnetic functional portion for performing at least one of magnetic detection and magnetic recording on the recording medium;

wherein the magnetic element comprises a laminate of a plurality of films, and the magnetic functional portion positioned at an intermediate portion of the magnetic element in the track width direction, and the magnetic element has a shape in which a portion outside the magnetic

functional portion more retreats from the recording medium than the magnetic functional portion, and the magnetic element is supported by the support so that the magnetic functional portion is brought nearer the recording medium than the outside portion;

wherein the magnetic element is provided on the trailing-side end surface of a slider serving as the support opposed to the recording medium, and a protecting layer made of a magnetic material is provided on the trailing-side end surface to cover the magnetic element; and

wherein a supporting member is provided for elastically supporting the slider of the magnetic head from the side opposite to the recording medium-facing surface.

18/17. A magnetic head device comprising a magnetic head comprising a magnetic element provided at the trailing-side end of a slider and having a magnetic functional portion performing at least one of magnetic detection and magnetic recording on a recording medium;

wherein an ABS is formed on a recording medium-facing surface of the slider so as to protrude to the recording medium side and to be located at a position deviating from the center of the slider in the width direction to one side end thereof, and the magnetic functional portion of the magnetic element is provided on the ABS to be located at a position deviating from the center of the maximum width dimension of the ABS to the one side end of the slider; and



wherein a supporting member is provided for elastically supporting the slider of the magnetic head from the side opposite to the recording medium-facing surface.

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